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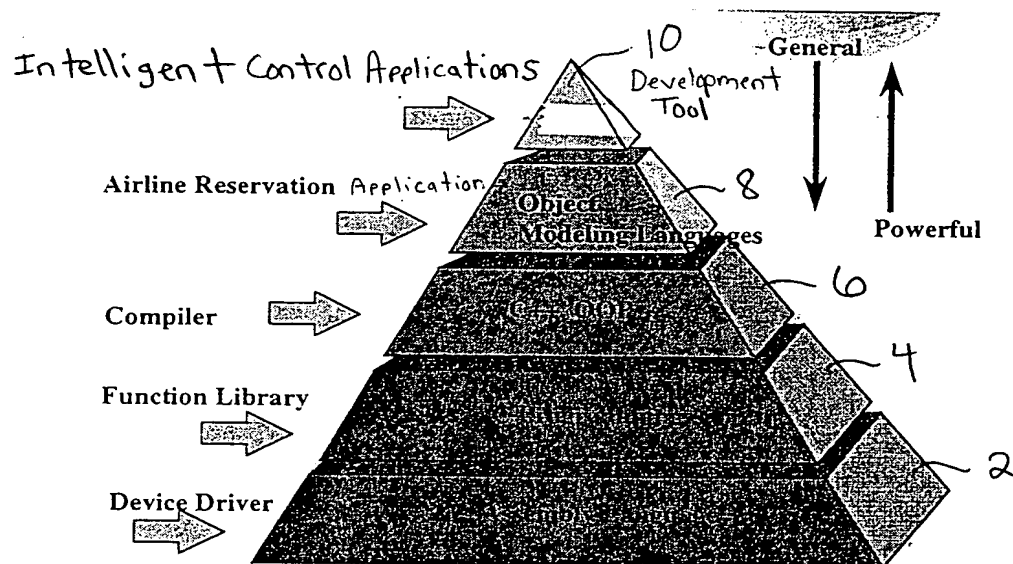
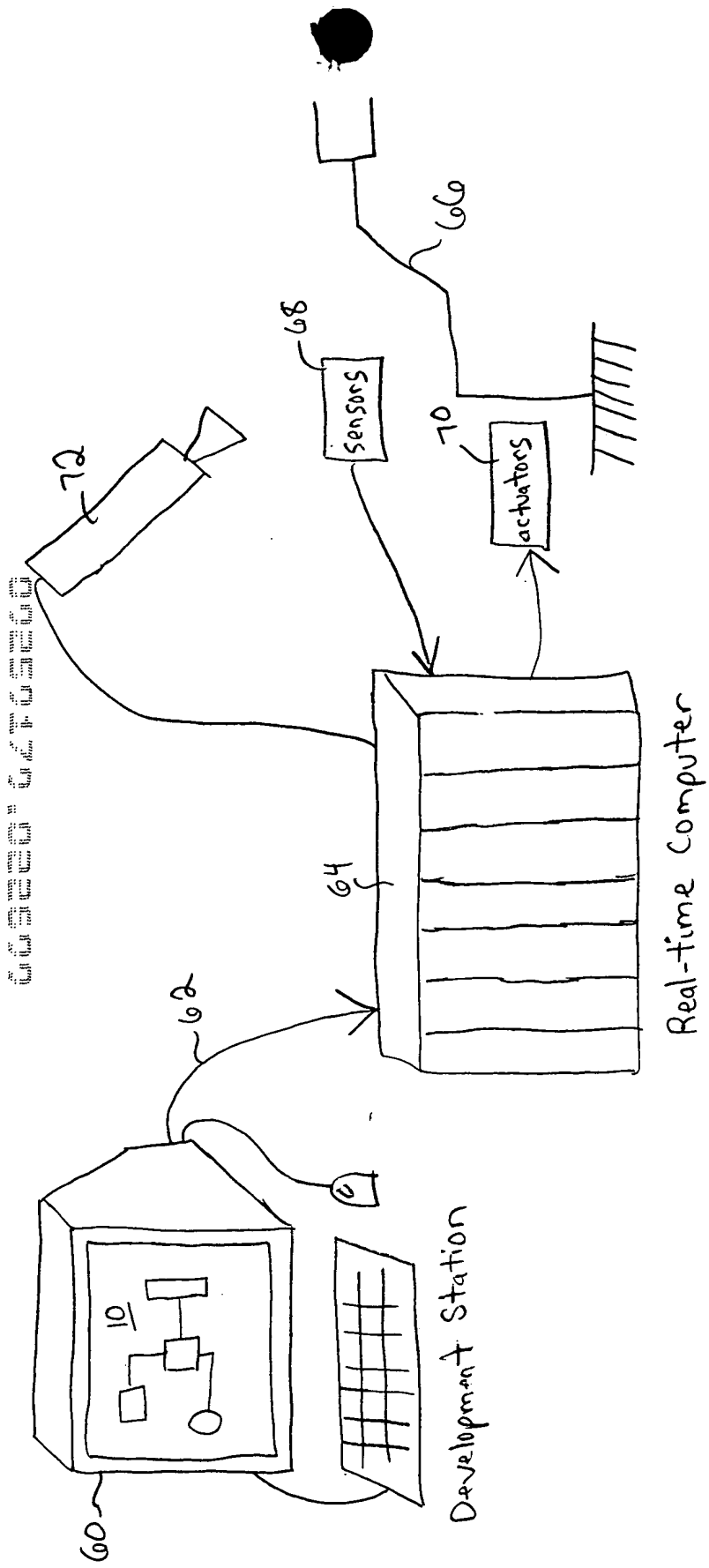
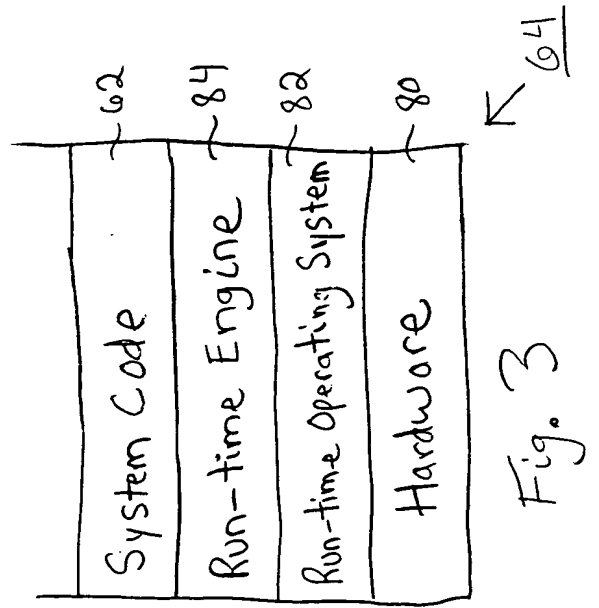
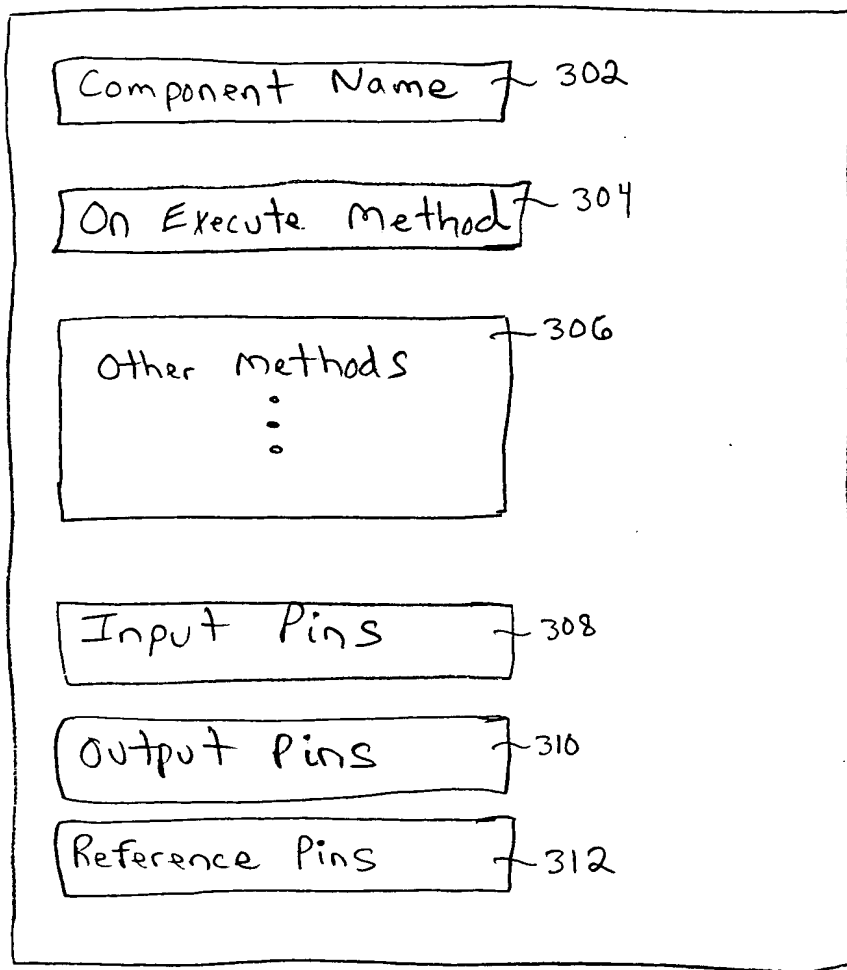


Fig. 1



50
Fig. 2

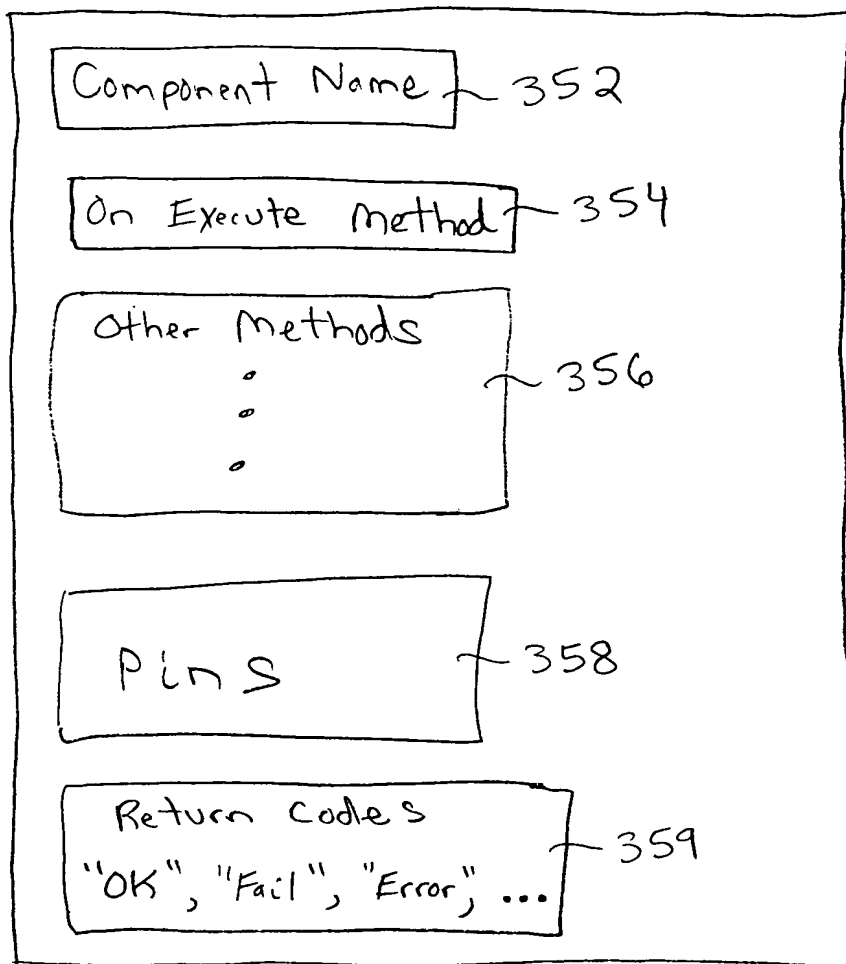




Data Flow Component

300 ↗

Fig. 4



State Transition Component

350 ↗

Fig. 5

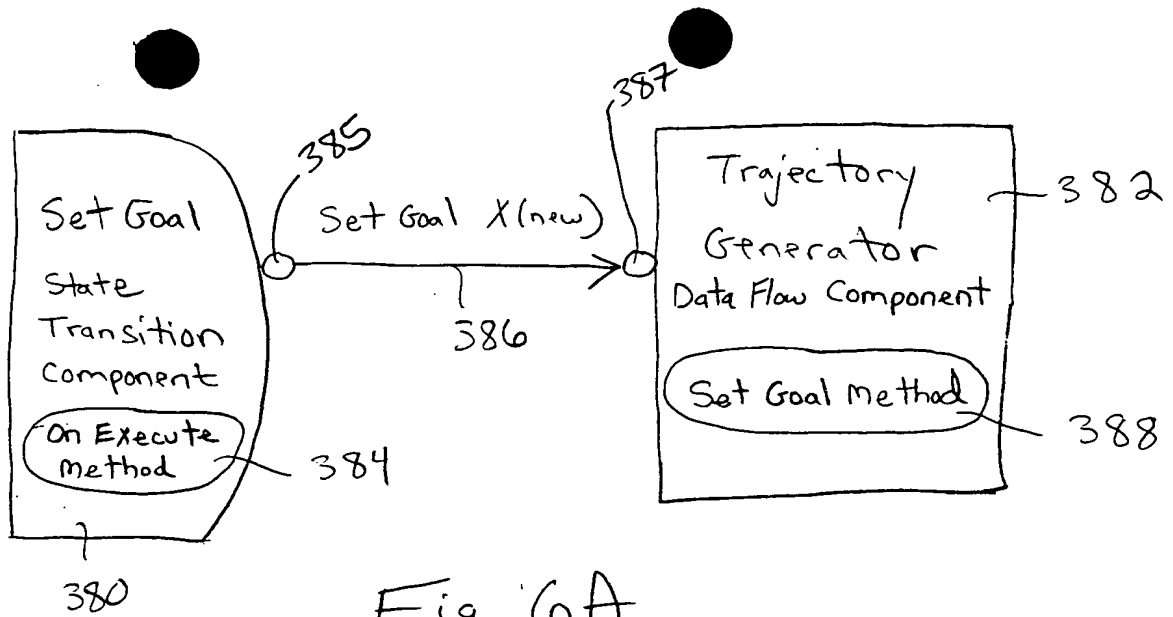


Fig. 6A

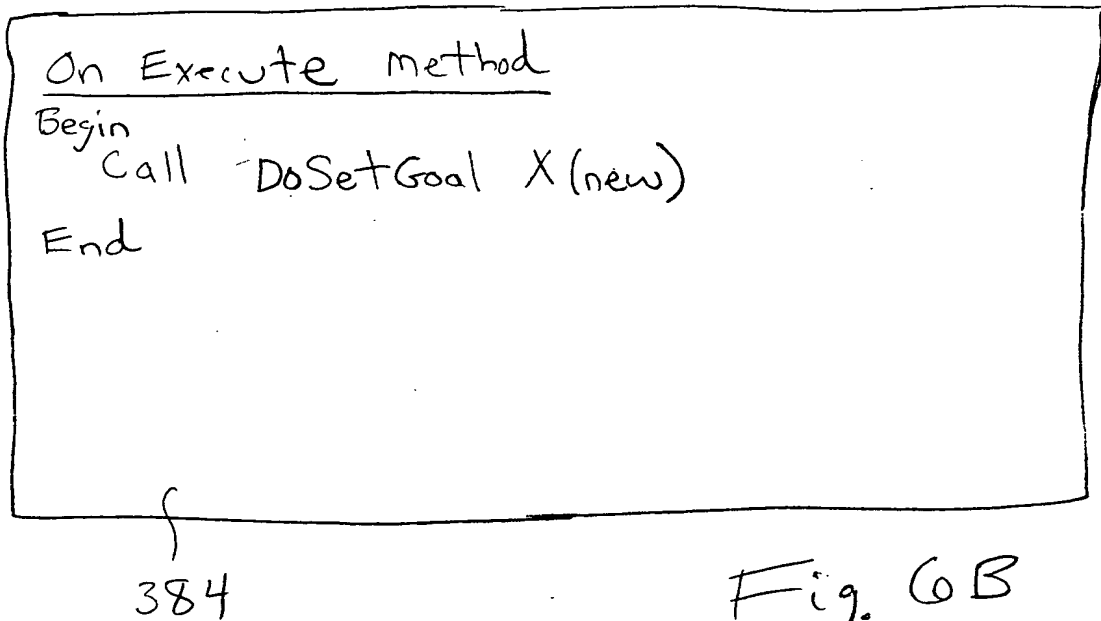


Fig. 6B

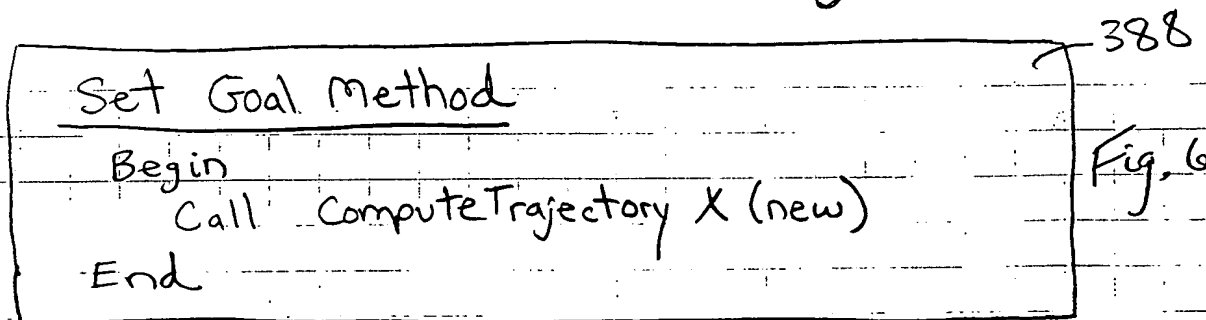
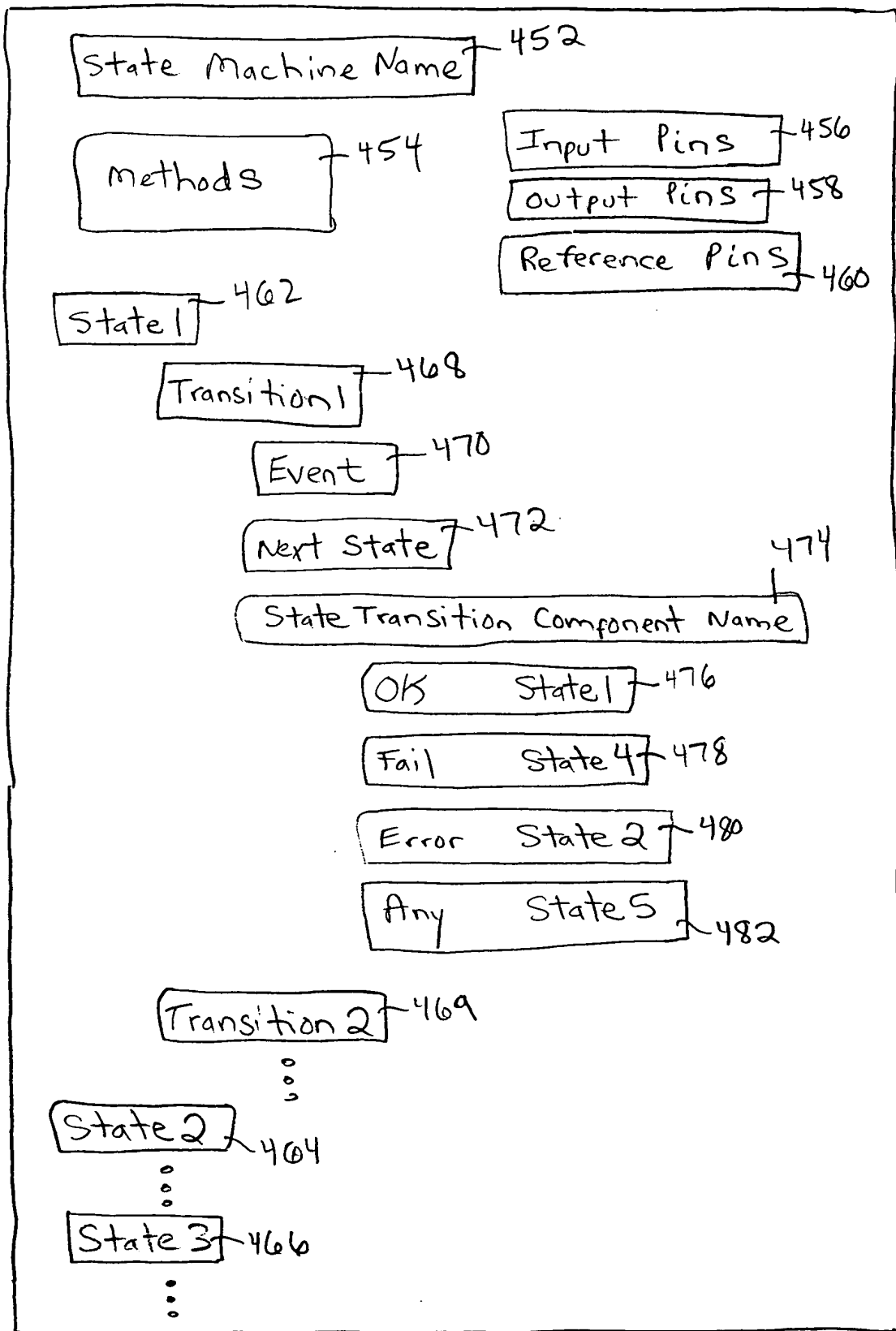


Fig. 6C

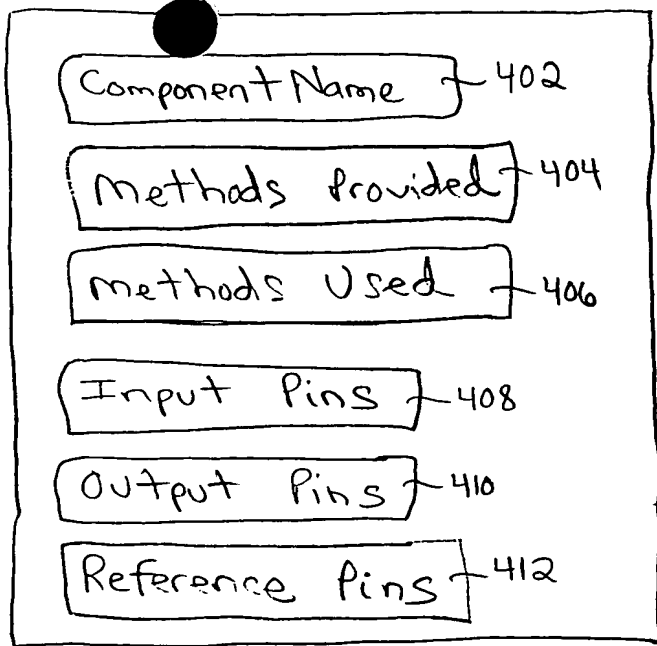
State Machine Component

Fig. 7

450
←



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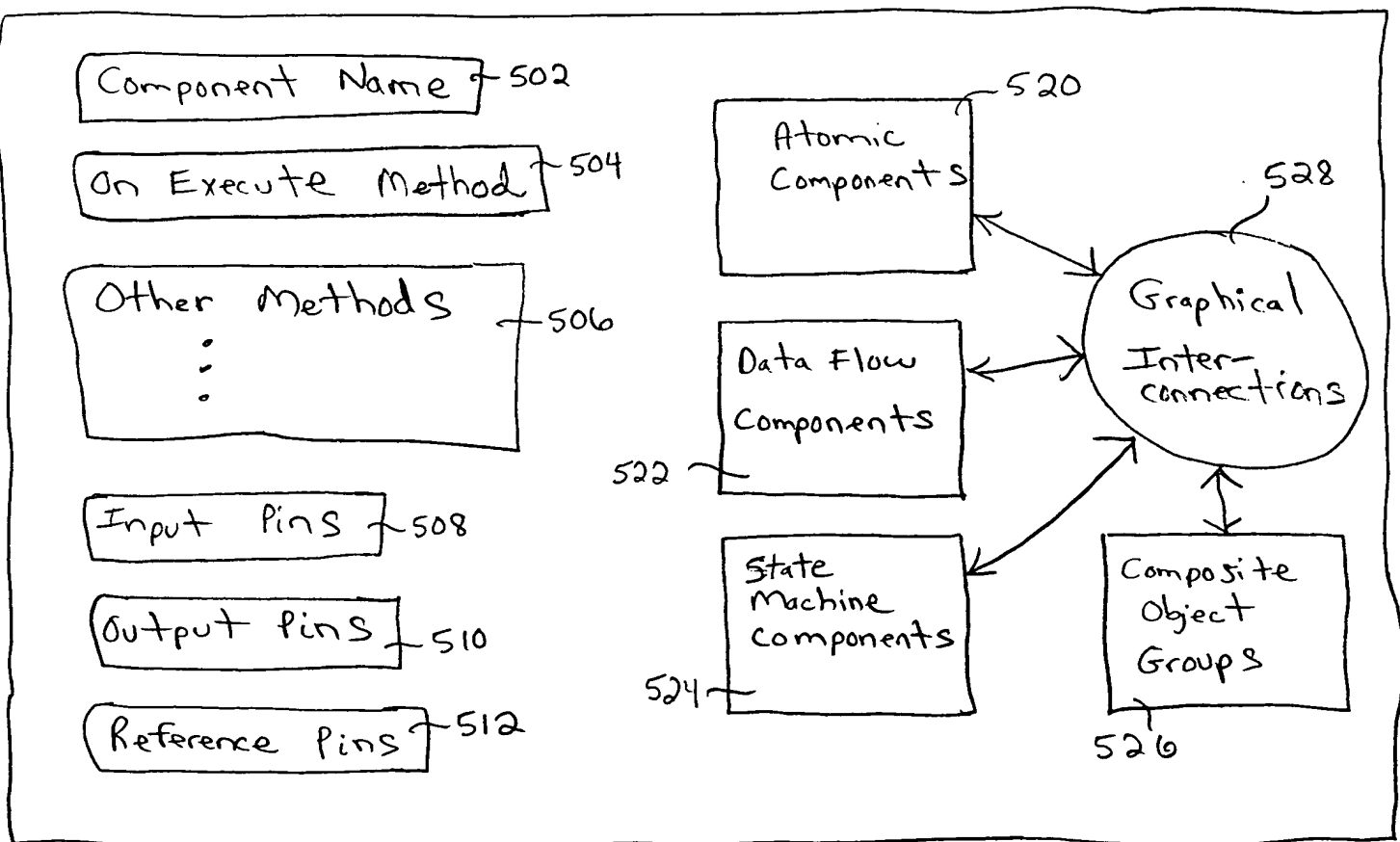


Interface Component

Fig. 8

← 400

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Composite Object Group

Fig. 9

↑ 500

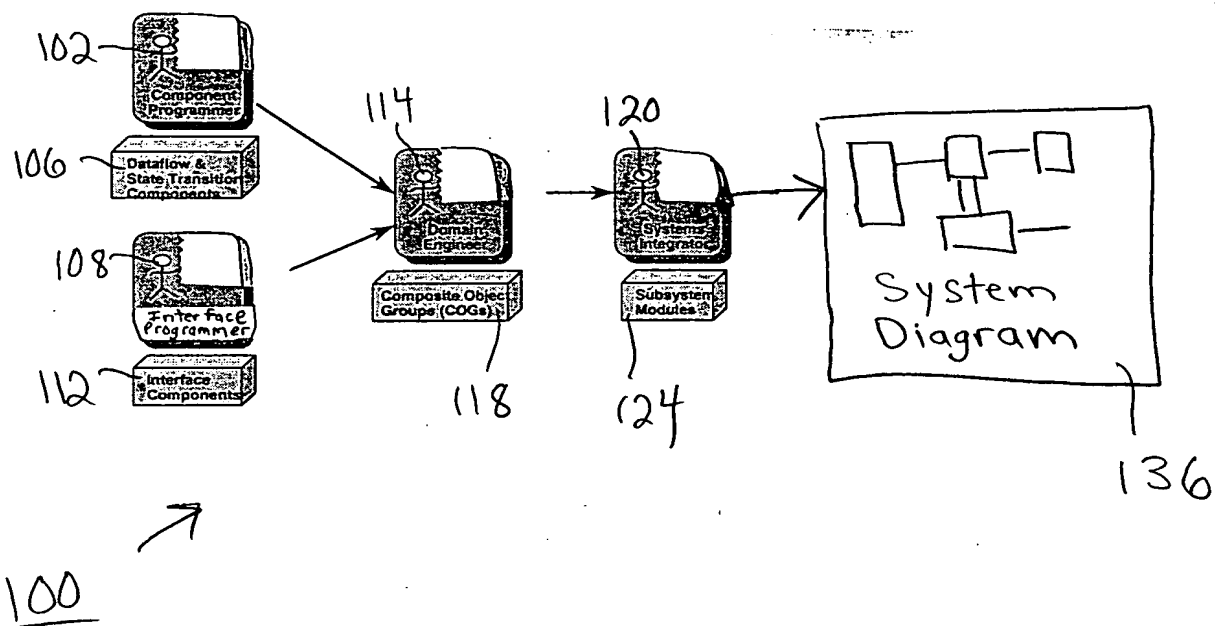


Fig. 10

Fig 11A

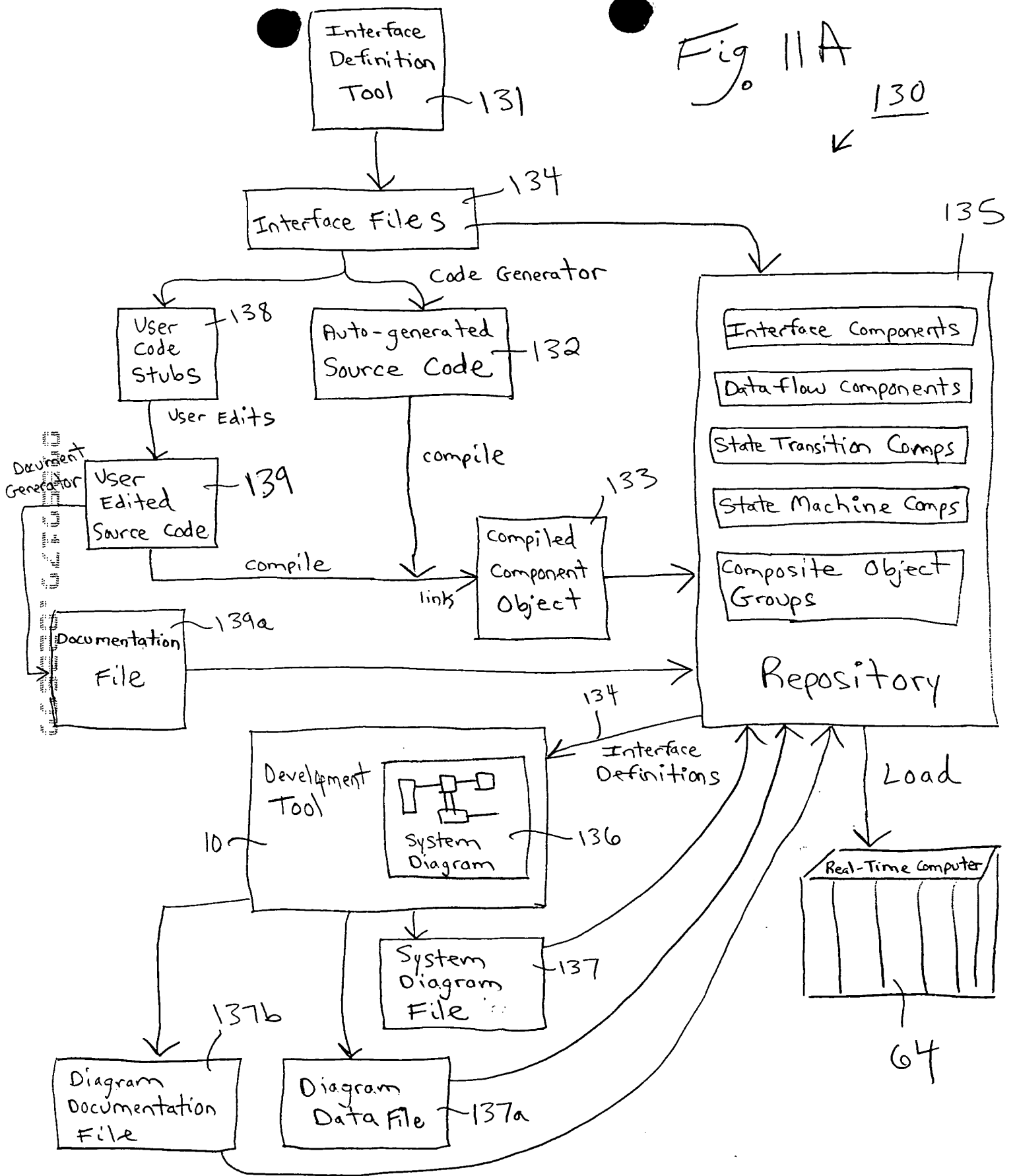
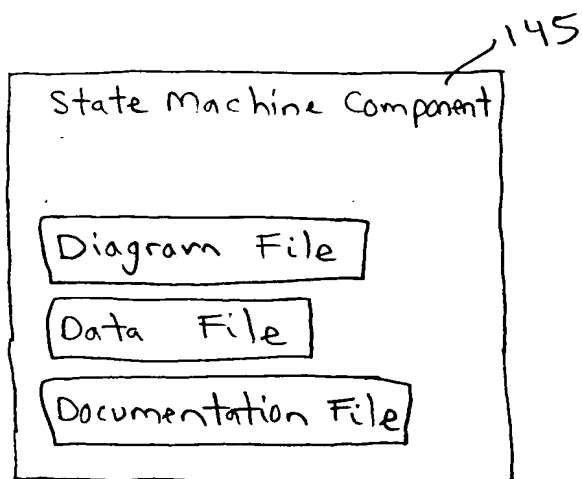
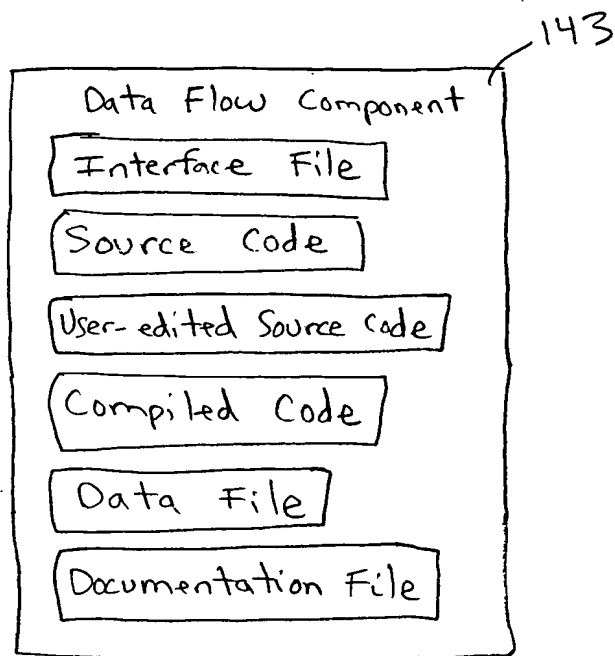
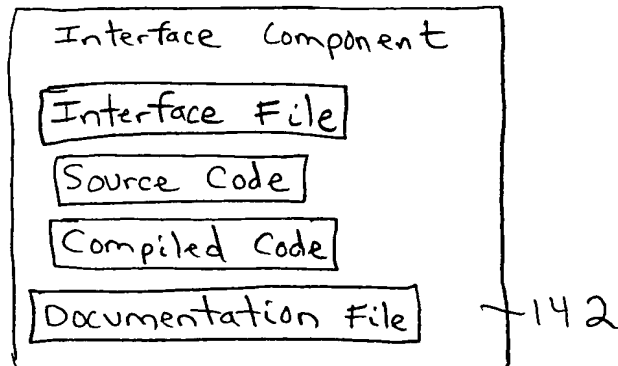
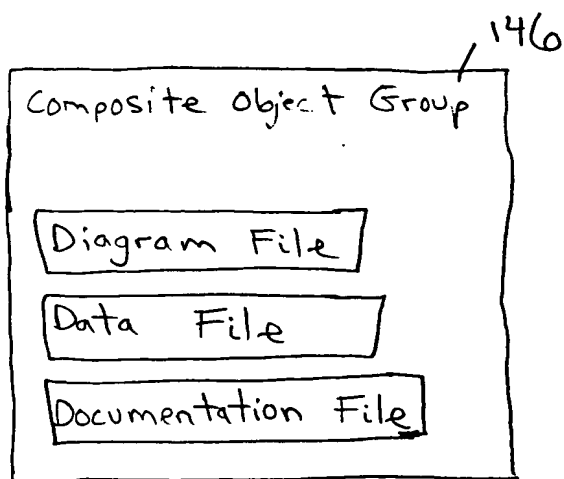
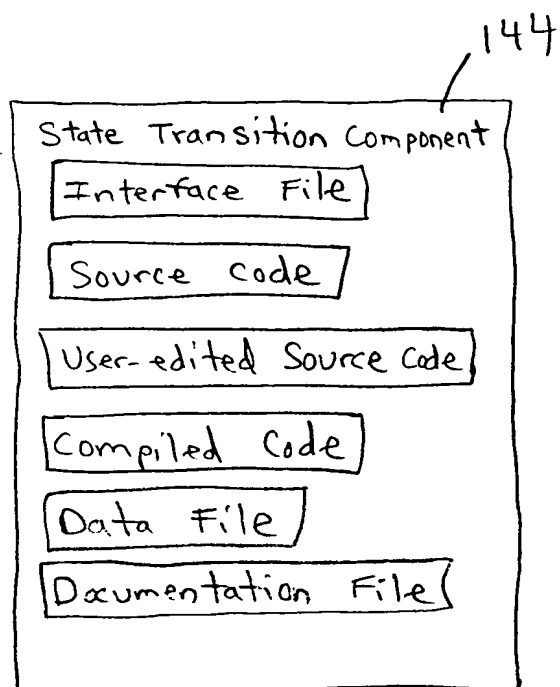


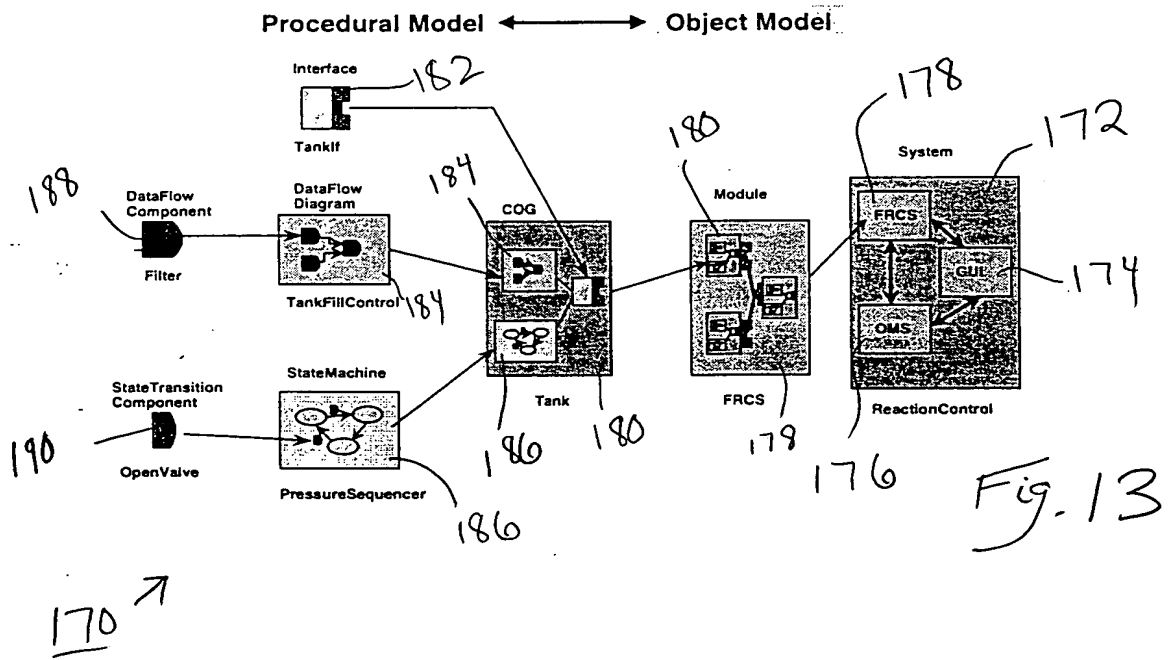
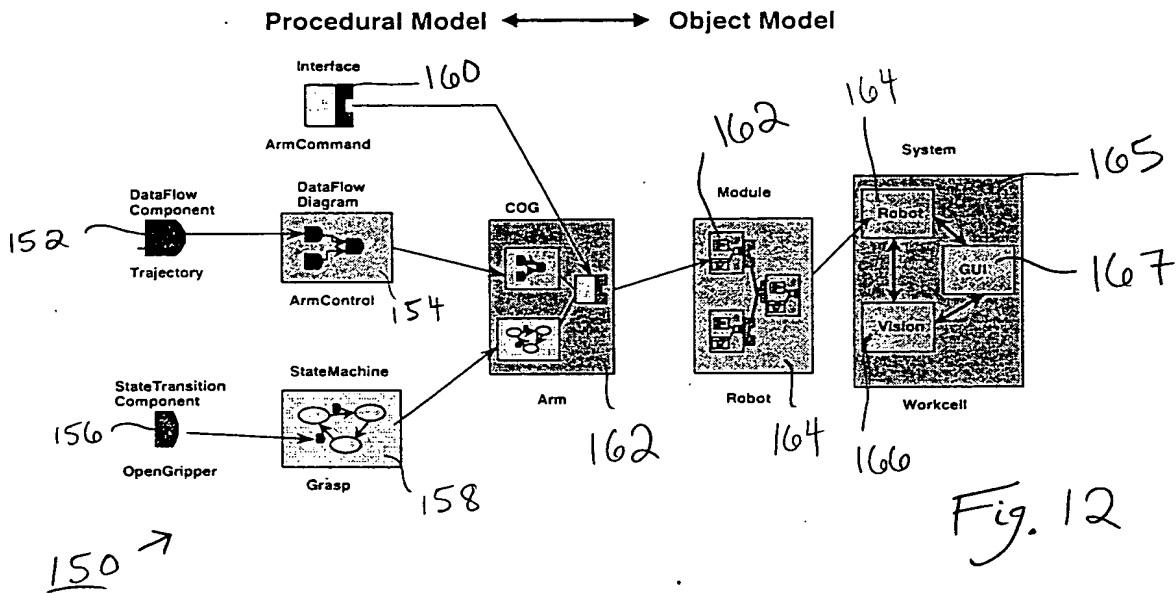
Fig. 11B



Repository

135





Robot Arm Controller

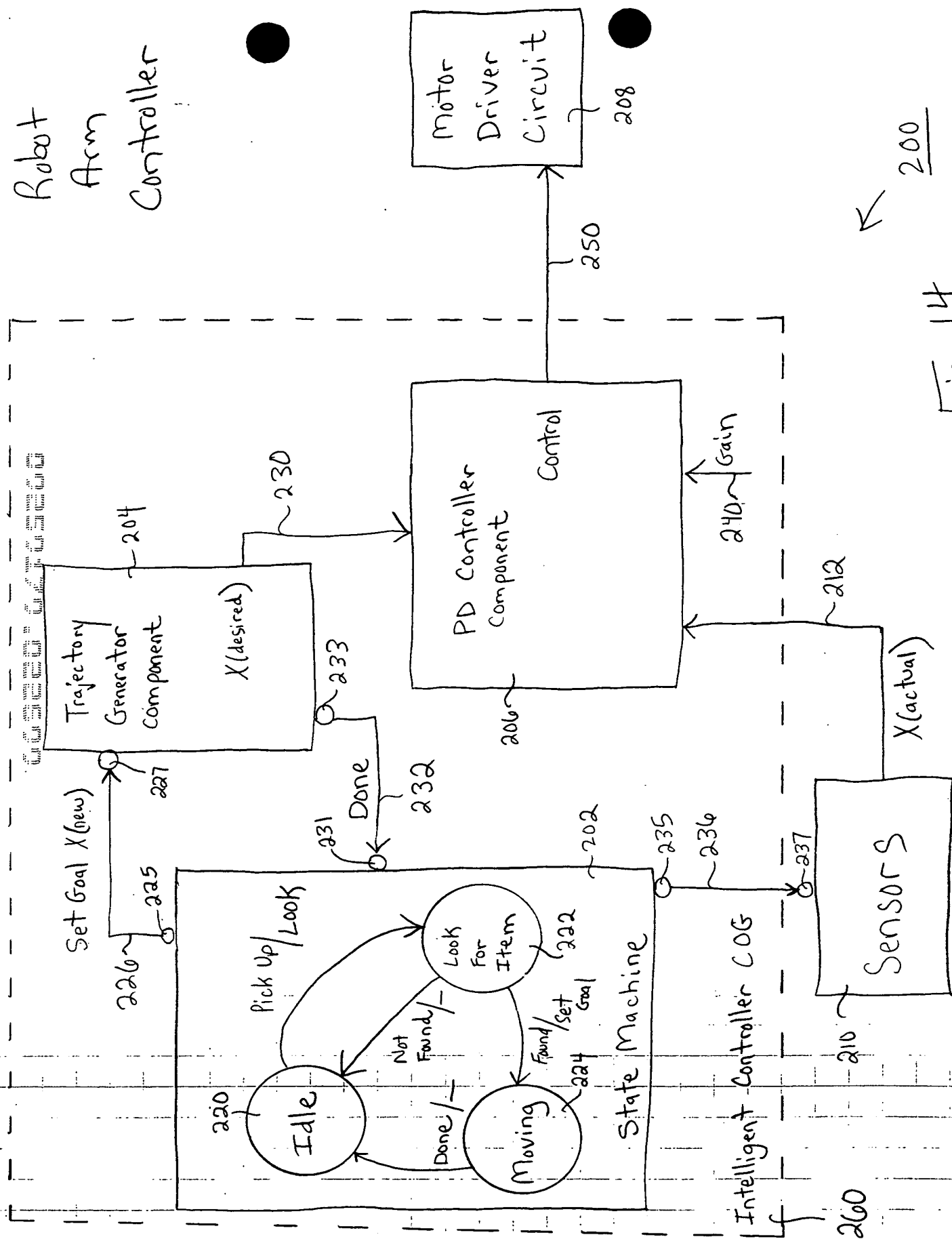


Fig. 14

Methods

provides Set Goal (X)
uses DONE ()

Pins

output X (desired)

Trajectory Generator Interface

Fig. 15

← 260

Methods

Pins

input X (desired)
X (actual)
reference Gain
output Control

PD Controller Interface

Fig. 16

← 270

Methods

provides Pick Up (Item)
uses doLook

Pins

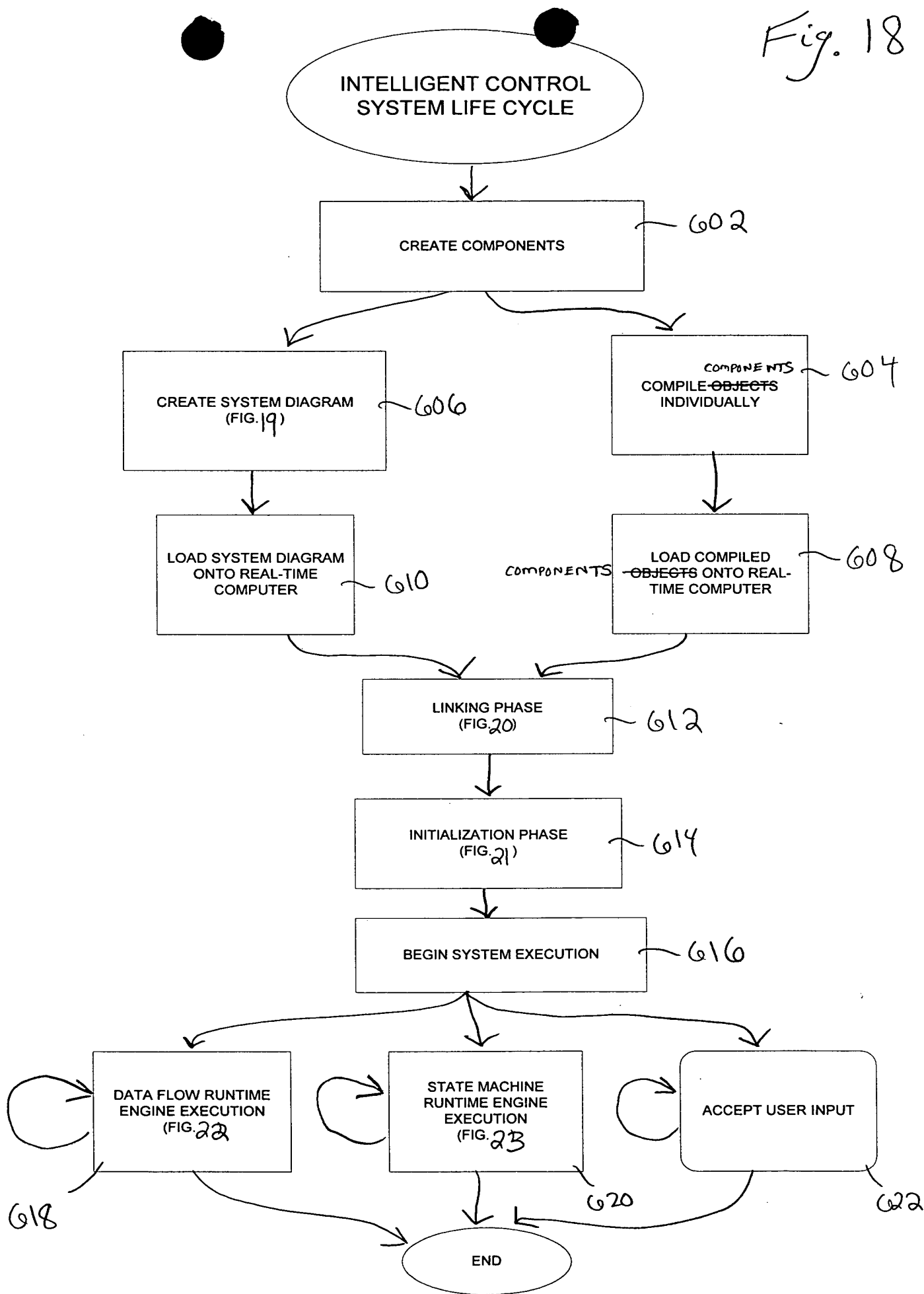
input X (actual)
reference Gain
output Control

Intelligent Controller COG Interface

Fig. 17

← 280

Fig. 18



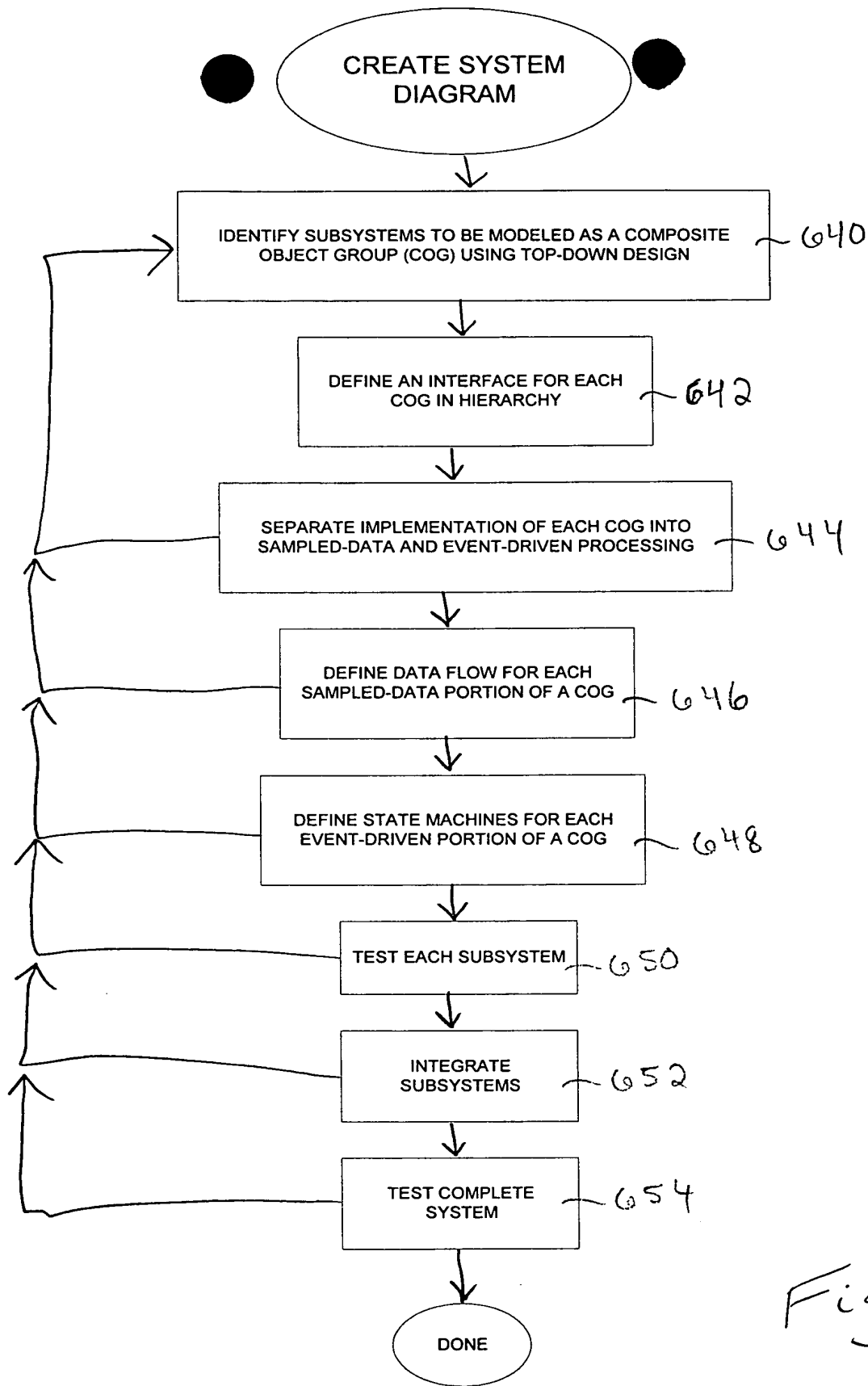


Fig. 19

Fig. 20

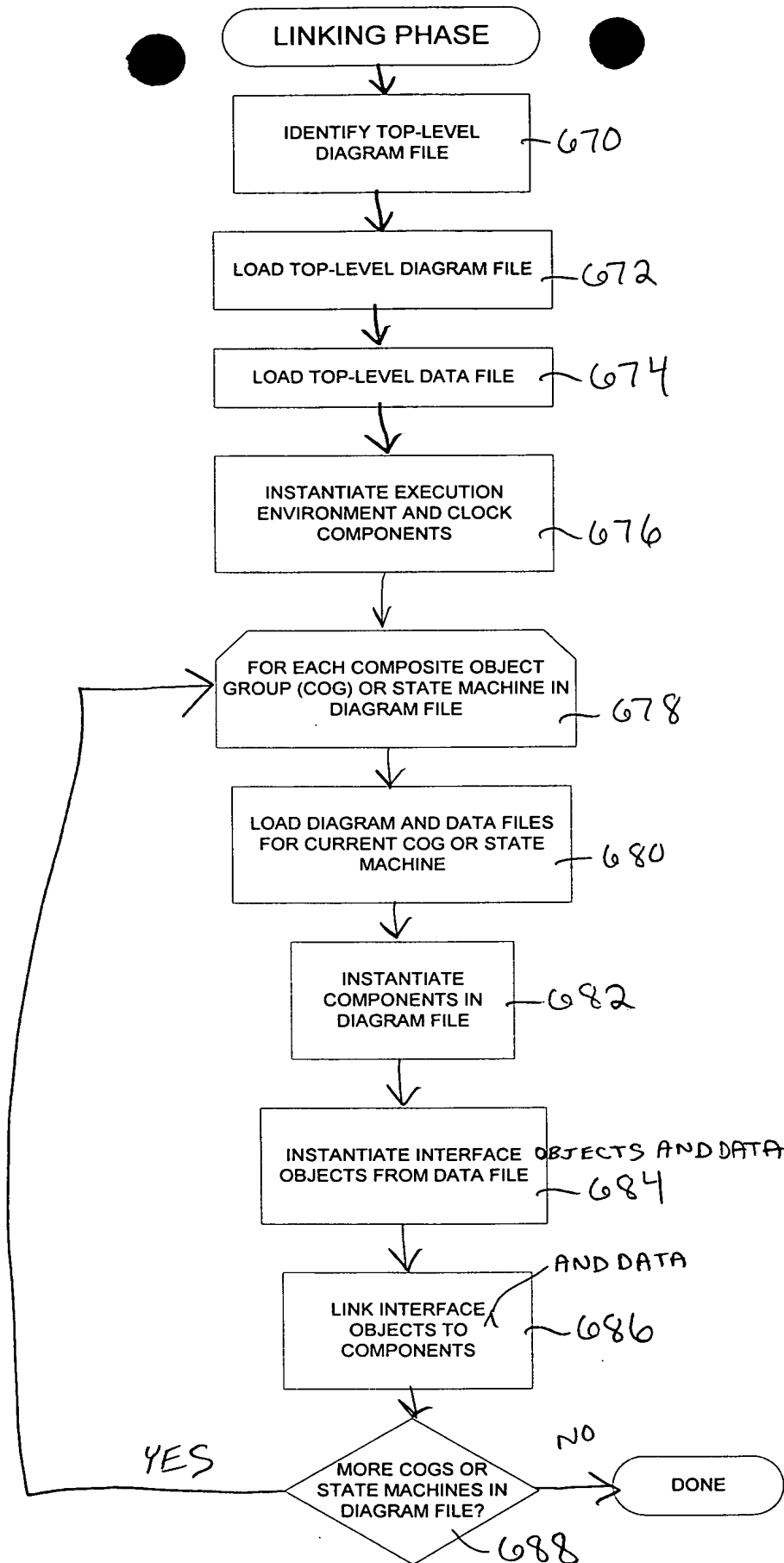


Fig. 21

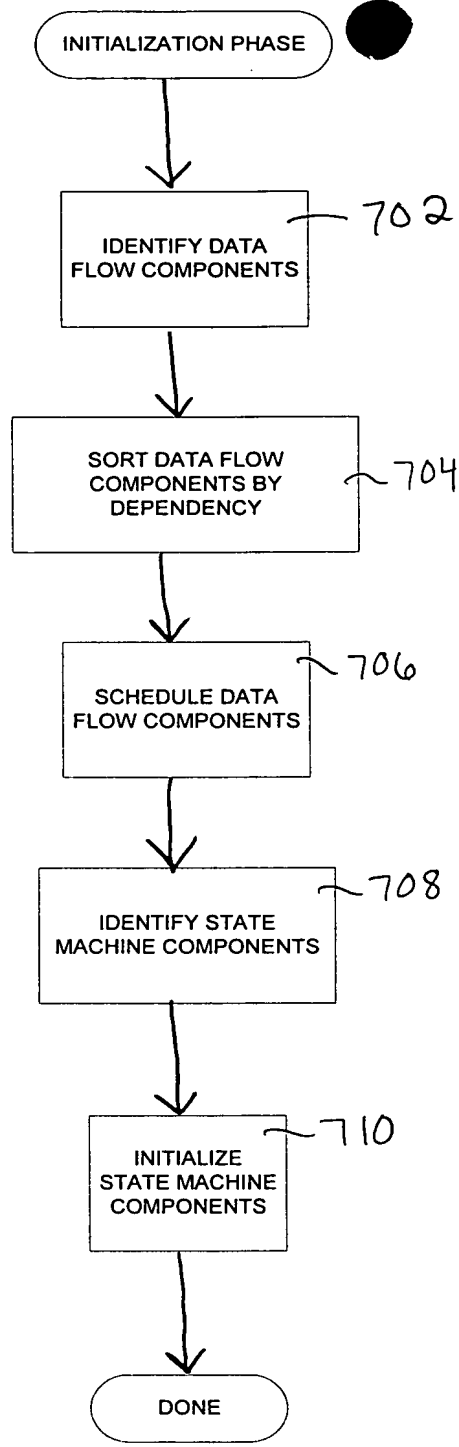
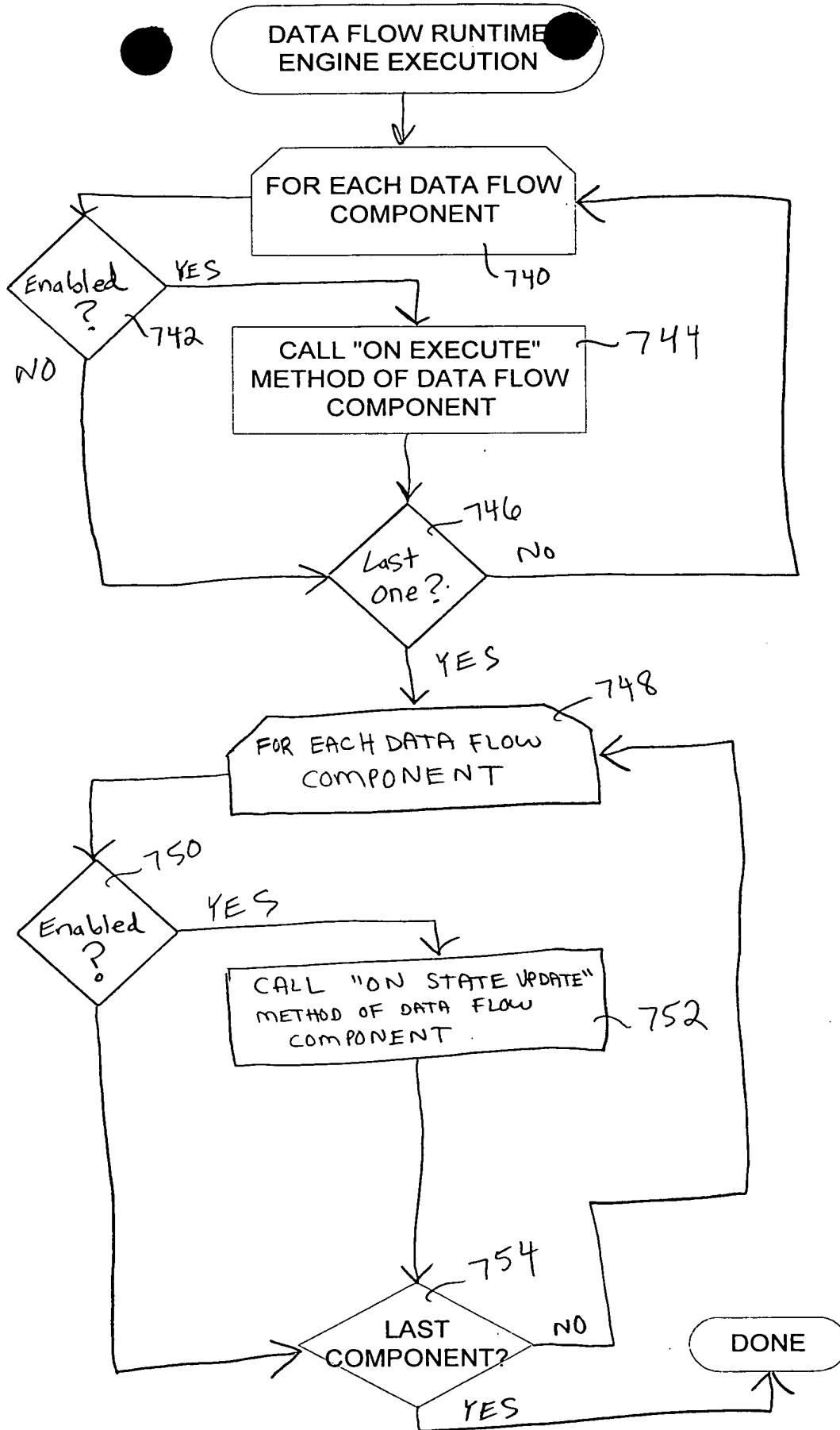
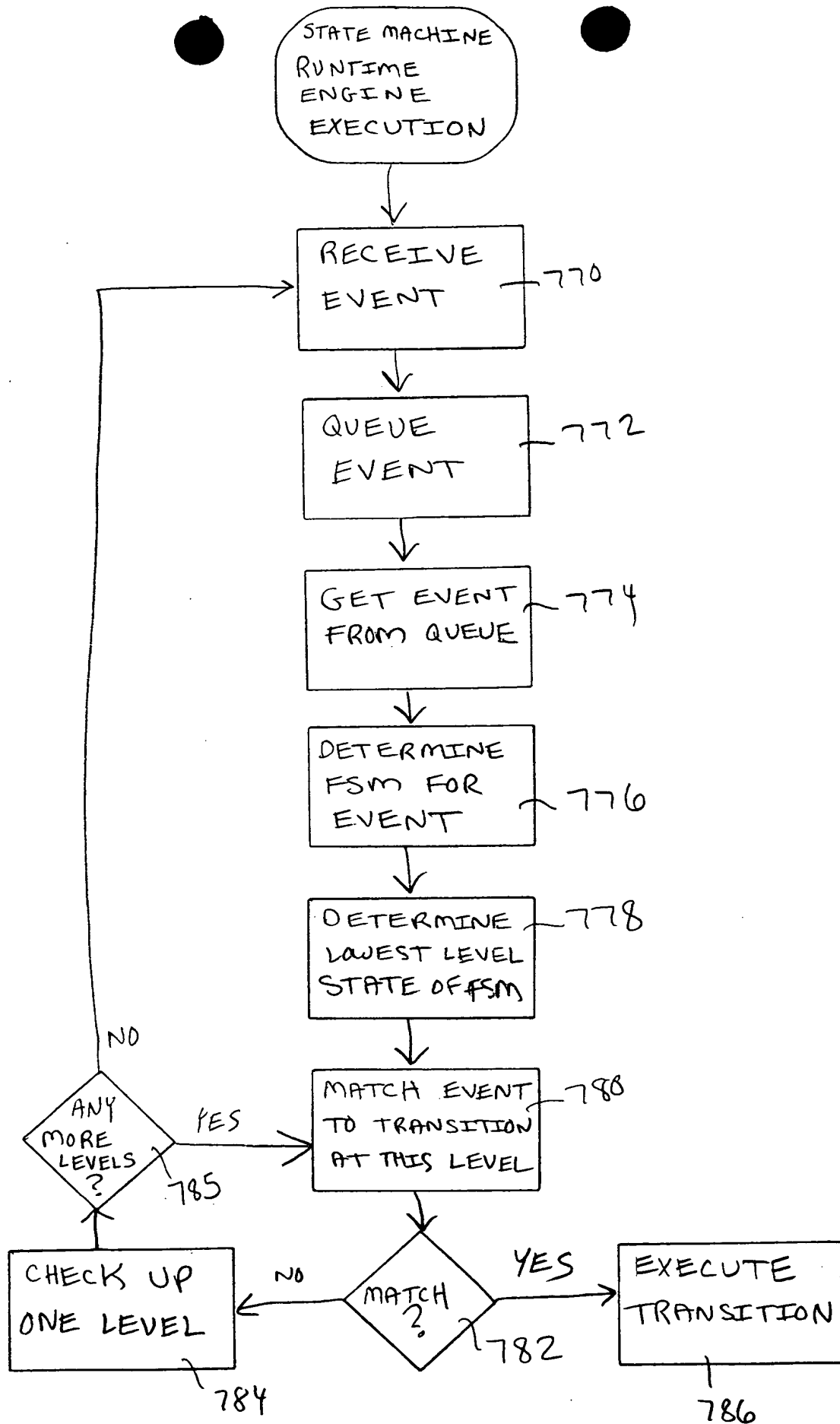


Fig. 22



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Fig. 23



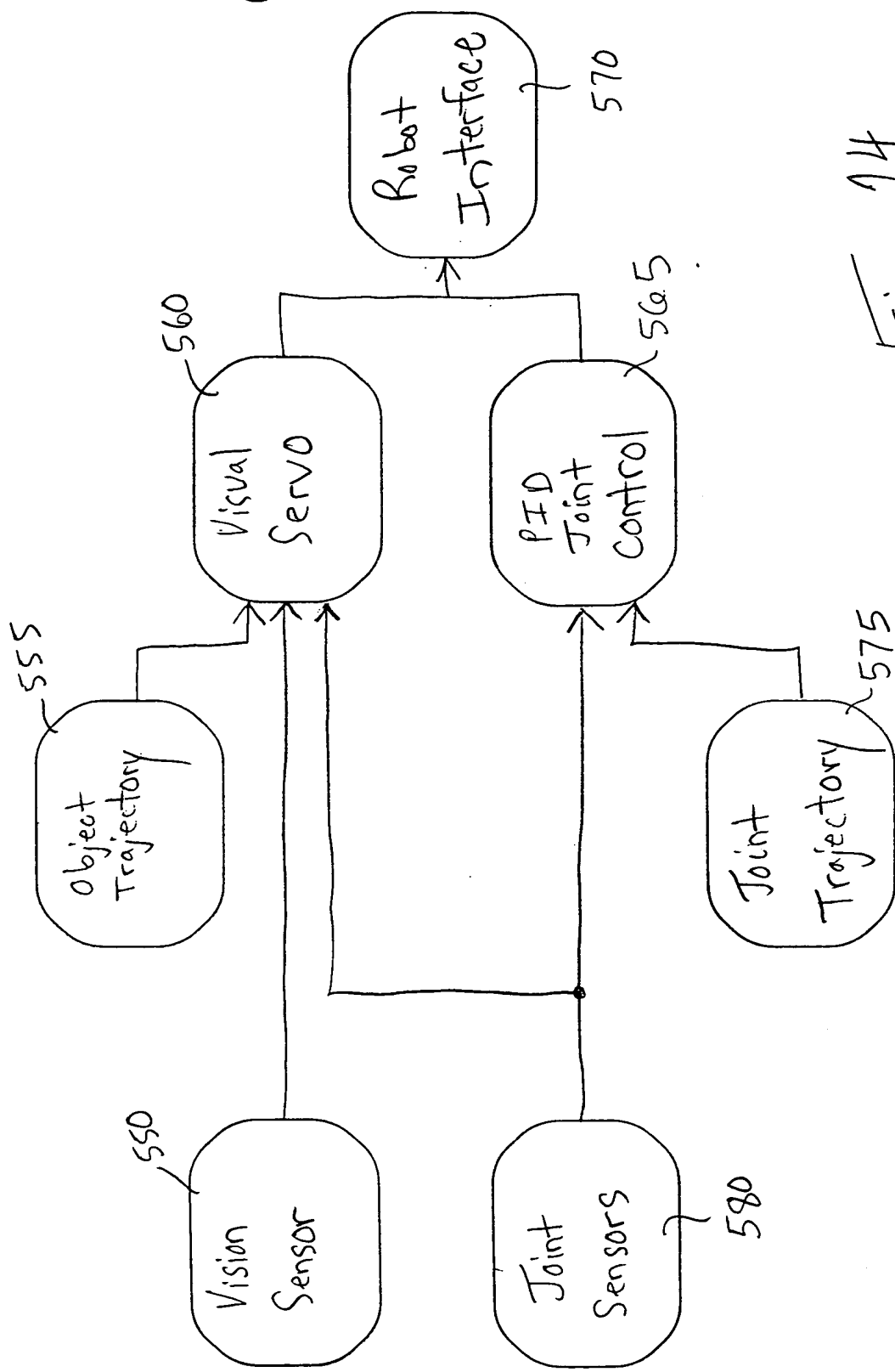


Fig. 4

FIG. 25

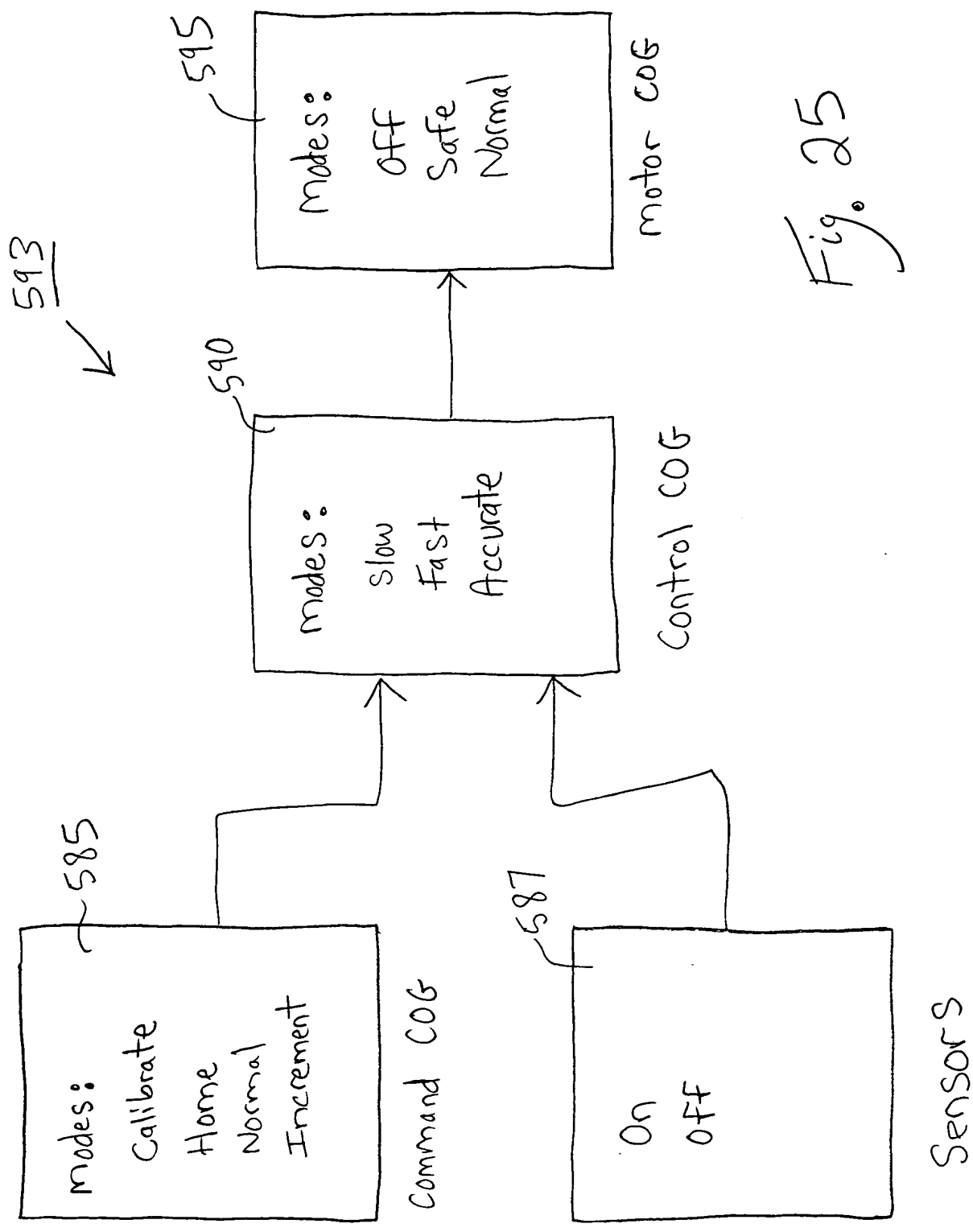
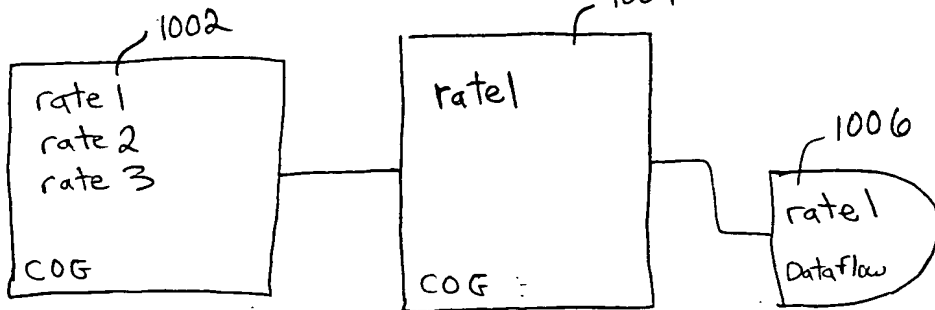


Fig. 25

Habitat A 10 Hz
Habitat B 100 Hz

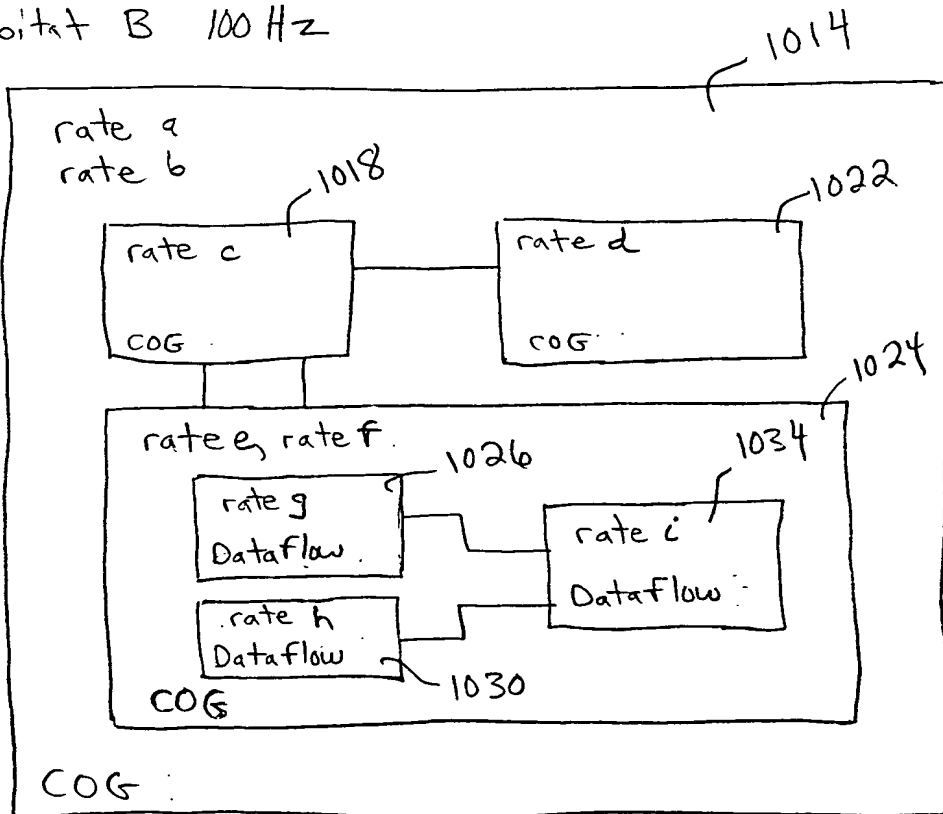


Parent COG 1000

Fig. 26

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Habitat A 10 Hz
Habitat B 100 Hz



Parent COG

Fig. 27

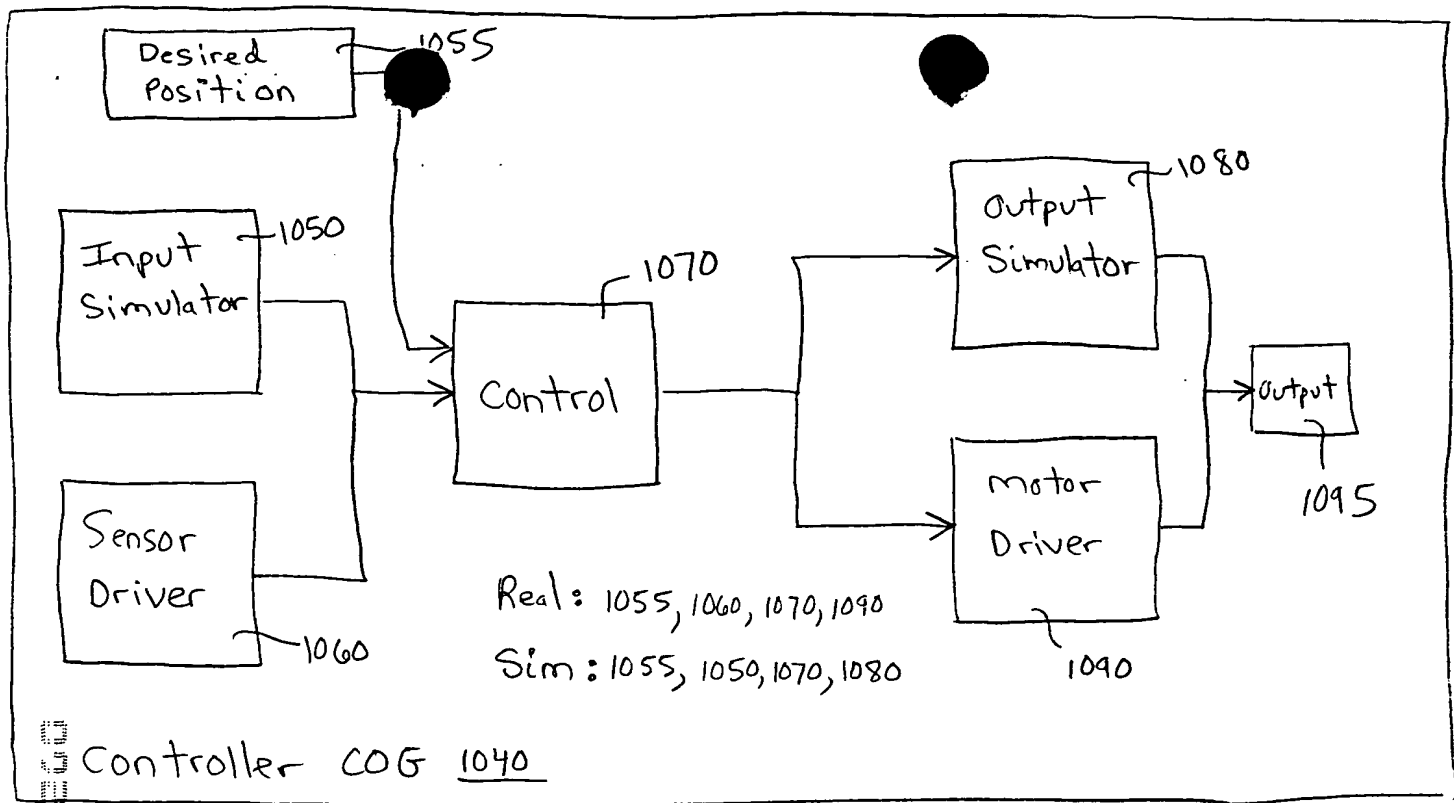


Fig. 28

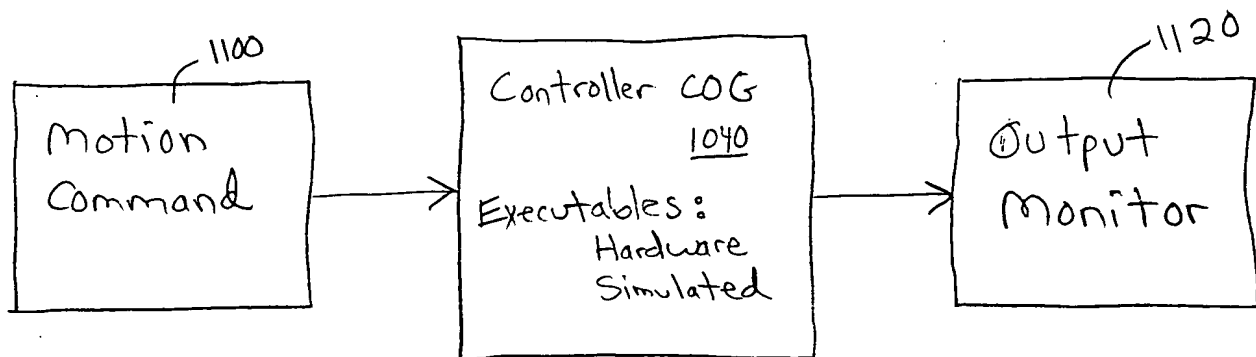


Fig. 29

